A TREMATODE PARASITE OF THE ENGLISH SPARROW IN THE UNITED STATES.

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In early June, 1910, young sparrows (*Passer domesticus*) were abundant about the barns and poultry plant of the College of Agriculture of the University of Wisconsin, and it was observed that occasionally certain individuals in the flocks appeared reluctant to take flight, and when they did so their flight was heavy, as if the birds were in some way weighted down. Such individuals frequently lagged somewhat behind the others, and it was often with difficulty that they managed to alight even so high as the top of a fence. On closer approach it was observed that these birds were hampered by some sort of growth or tumor in the region of the anus, of such size that it was often plainly discernible at a distance of several feet.

Specimens of these sparrows were finally secured, when it was seen that what had appeared to be a single tumor, was in reality made up of a number of aggregated vesicles or cysts, the largest of which were about 5 mm. in diameter. Upon opening these vesicles, they were found each to contain two, or sometimes more, broadly ovate trematode worms, which were provisionally identified as *Monostoma faba* Bremser.[1] Figures 1 and 2 show ventral views of two infected sparrows. It will be noted that in Figure 1 the vesicles form a grape-like cluster on the lower abdomen;[2] in Figure 2 there is a similar bunch in the same relative position, but in addition this bird has a rosette-like cluster of five cysts just below the sternum. The photographs also show on

1) Professor H. B. Ward of the University of Illinois kindly agreed to examine this parasite, and accordingly specimens were submitted to him. In return he writes: "I think you have the form indicated, but it would be hazardous to make a positive statement without giving more time to the study of the structure than is possible for me at the present moment."

2) Some of the feathers have been plucked away on both these birds in order that they might not obstruct the view of the cysts.

PLATE V.

Fig. 1.

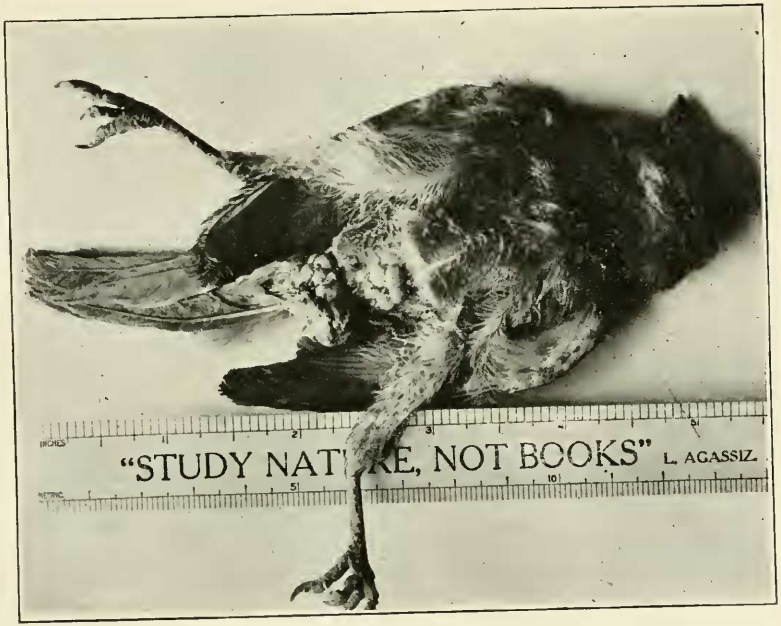

FIG. 2.

many of the cysts an interesting structure which was common to all of them, namely, a small black spot, which is in reality a minute opening communicating with the interior of the cyst. That this was in reality such an opening was made evident in the case of one specimen which was laid in the ice box over night. When this specimen was examined the folowing morning a small quantity of a dark, almost black fluid was observed oozing from these pores on many of the cysts. Under the microscope this was plainly revealed to be a rather scanty serous fluid crammed with the dark brown eggs of the parasite.

Monostama faba has been known in Europe for more than three-quarters of a century, but has been reported only at irregular intervals, and apparently has never been found with much frequency. It was first described and figured by Bremser (1831) in the *Tabulæ anatomiam cutozoorum illustrantes* of Schmalz from specimens found in the skin of a titmouse *(Parus major)* by S. Th. v. Sömmerring, while later Bremser obtained it from one of the Old World warblers *(Ficedula (Sylvia) sibiliatrix Bechst.)*. He apparently described it also, in the same volume, as *Monostoma geminum,* from the wag-tail *(Motacilla boarula* L.).[3] A few years later Miescher (1838) reported the species as "tolerably frequent" on the domestic sparrow *(Passer domesticus* L.) at Basel.[4] At about the same time Creplin (1839) reported it from Germany on another of the *Sylviidæ*. These two authors did much toward clearing up the understanding of the anatomy of the parasite, especially of the digestive and excretory systems, but mistook the yolk glands for the ovaries and were in disagreement as to the male reproductive organs. From this time little was added to the knowledge of this form till Willemoes-Suhm (1873), more than 30 years later, obtained it on the wheat-ear *(Saxicola œnanthe)* in Germany. This writer gives the first hint, so far as I can find, of the possible life cycle of *Monstoma faba.* He confirms the earlier observations, that the parasites usually occur two together in the cysts, with their ventral sides opposed, and states that the small pore through the cyst wall

3) *Teste* Creplin (1839). I have not had access to the original descriptions in Schmalz.

4) Dr. S. Graenicher of the Milwaukee Public Museum informs me that at Basel, in 1885 (nearly 50 years after Miescher's observations), his attention was called to the frequency of what was apparently this same parasite on the sparrows of that city.

serves for the extrusion of the eggs and excretory products. He furthermore suggests that the eggs may then be eaten by the feather lice *(Mallophaga)* which infest all birds, or by some of the insects which live parasitically in the birds' nests, and that it is among these that the intermediate host should be sought. So far as I am able to learn, nothing more definite than this pertaining to the life history of this organism occurs in the literature.

If the life history of the species involves only the possible intermediate hosts mentioned above, the parasite going directly from its primary host to the intermediate and back again, it would seem that its life cycle were fairly safeguarded, and that the species should be more common. Willemoes-Suhm (**1873**, p. 335) recognized this fact and remarked on the infrequent and sporadic appearance of the adult parasite. His specimens, as stated above, were obtained on a wheatear, which he procured in the bird market of Genoa, and although this dealer handled and examined daily a large number of small birds, in no other case was the parasite found. A taxidermist in Munich, whom Willemoes-Suhm interested in the matter, examined many birds during three years with no better success.

Railliet (**1898**) gives a list of ten passerine birds from which the species has been recorded, all of them of small size. The list includes representatives of the families *Fringillidæ* (including the canary), *Turidæ, Sylviidæ, Motacillidæ, Paridæ* and *Sturnidæ* (the starling). To these he adds an eleventh,[5] a jay *(Garrulus glandularis* Vieill.) belonging to the *Corvidæ*. Including his record, the parasite was then known from Austria, Switzerland, Germany, Italy and France. It has apparently not, previously to the present, been reported from the United States,[6] and its

5) Braun (1893, p. 877) gives *Monostoma faba* as occurring on 13 species of birds and when synonyms are eliminated it leaves about the same number cited by Stiles and Hassall (**1908**).

6) Stiles and Hassell (**1908**, p. 312) include in their list of the hosts of *Monostoma faba* the bluejay (*Cyanocitta cristata*), which is a strictly American bird. Since, however, they have not included the French jay (*Garrulus glandularis*) reported by Railliet, it is possible that this is a slip.

[Since the foregoing was written, I have learned that Dr. Hassell found *Monostoma faba* on a specimen of *Cyanocitta cristata* collected in Maryland in 1908. The record was published nowhere except in Stiles and Hassell (**1908**) as mentioned above.

Through the kindness of Dr. B. H. Ransom, Chief of the Zoological Division of the U. S. Bureau of Animal Industry, I am, furthermore, able to report that the Bureau has a hitherto unpublished record of *Monostoma faba* on an English Sparrow sent in from Ripon, Wisconsin, by Prof. C. S. Millliken, in August, 1907.—L. J. C.]